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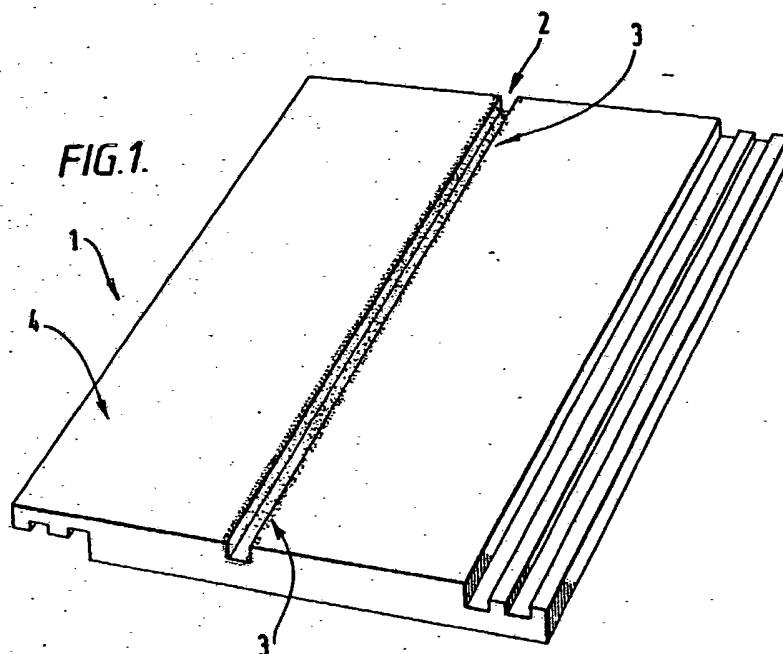
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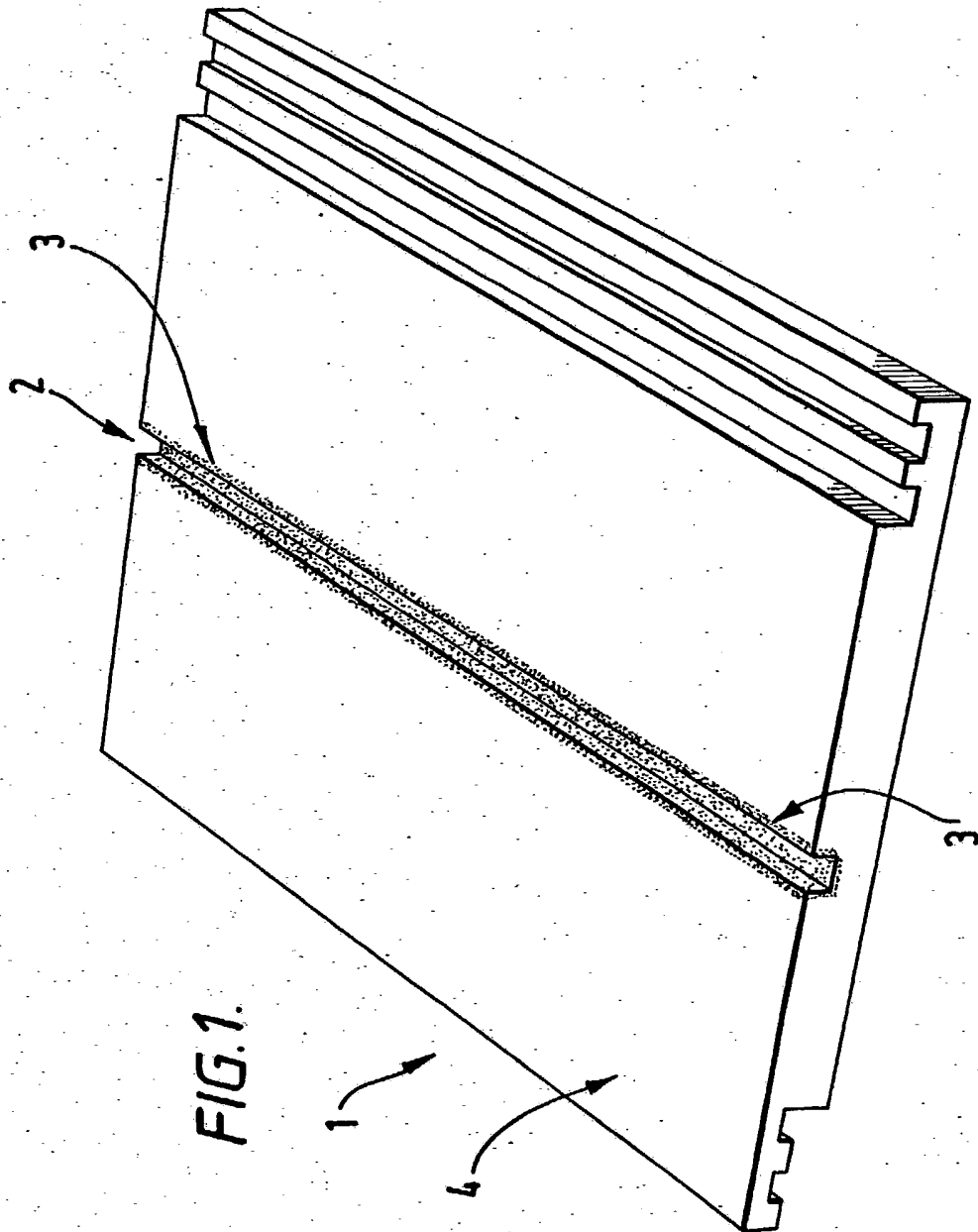
(56) Documents cited  
GB A 2123058 GB 1127311 GB 1025606  
GB 1014140 EP A1 0102431

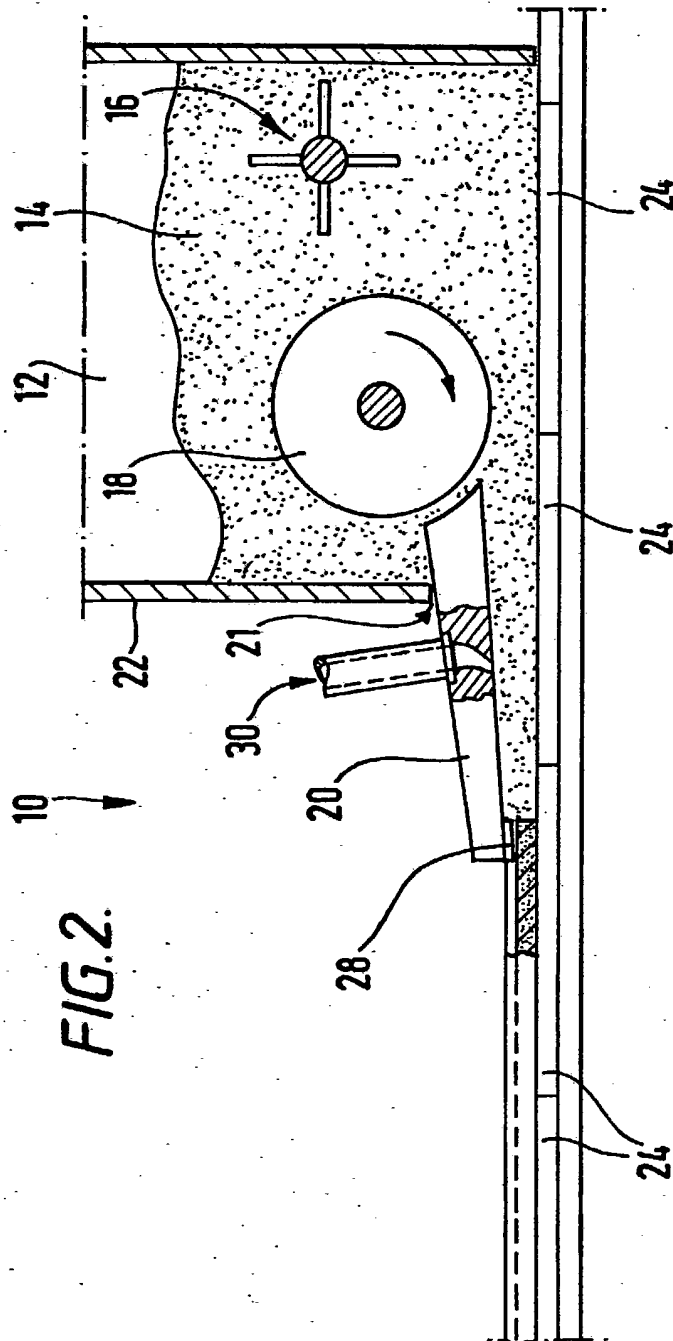
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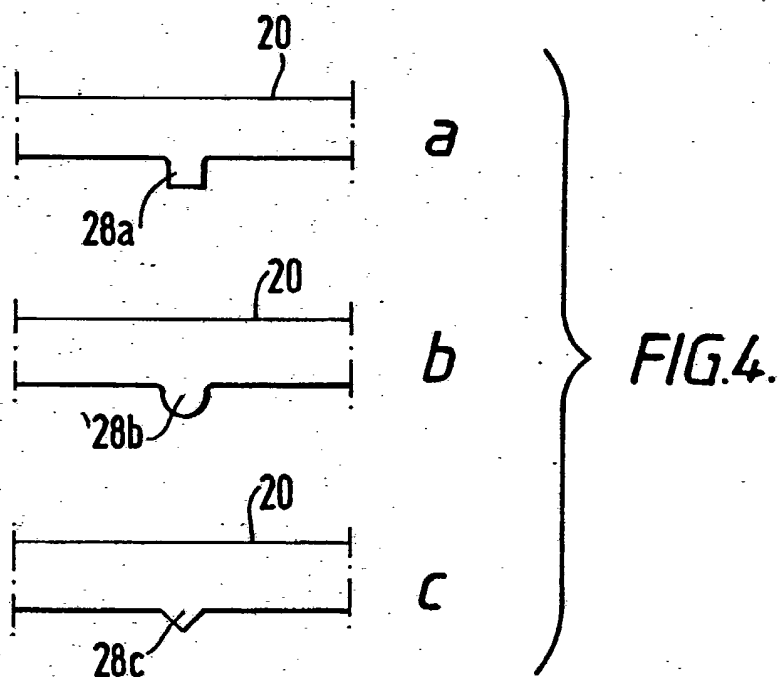
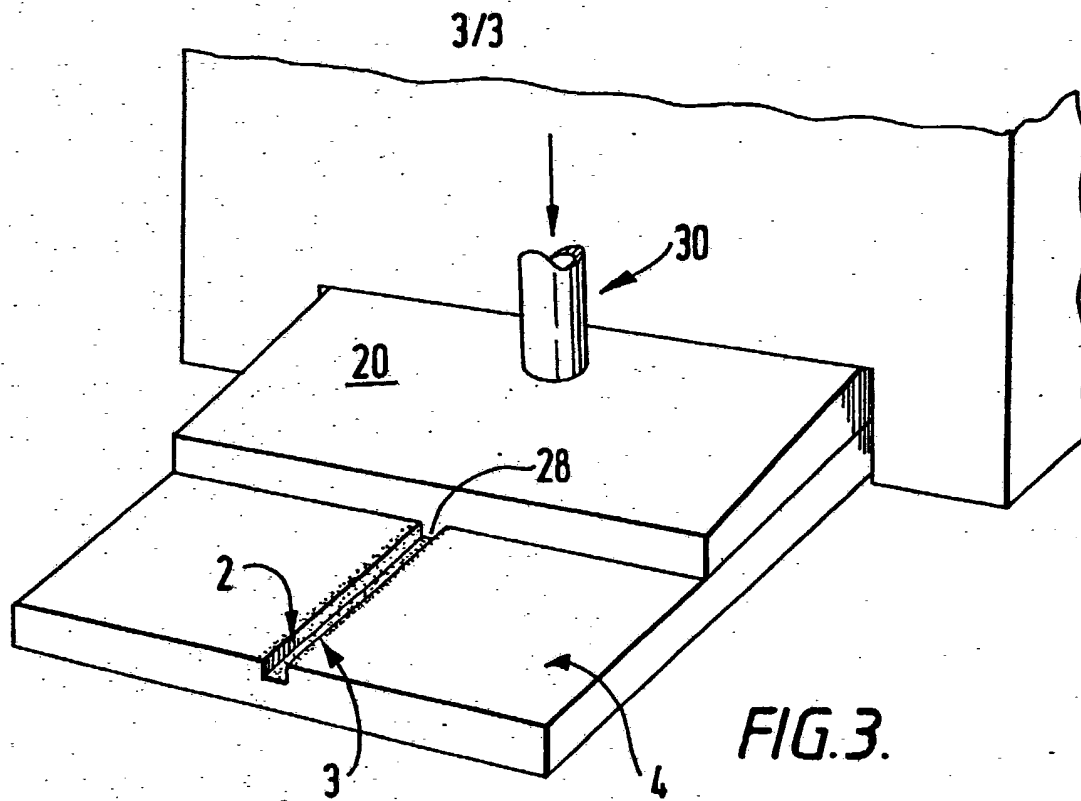
## (54) Roof tile with mock-joint

(57) Roof tiles are provided with highlighted "mock-joints" 2 to give the appearance that the tile is comprised of more than one tile in side-by-side relationship on a roof. The tiles are manufactured in a conventional concrete tile making plant in which mortar fed to a hopper extruder of conventional design is formed as a continuous ribbon on a series of pallets conveyed beneath the hopper extruder. The hopper extruder is provided with a conventional slipper at an outlet thereof which slipper has a blade member formed integrally therewith for forming the "mock-joint" in the continuous ribbon, the slipper also being provided with injection means whereby a secondary material is introduced into and/or onto the surfaces of the "mock-joint" to highlight the joint in the finished products.









Improvements in Roof Tiles

5 This invention is concerned with improvements in roof tiles and is particularly concerned with improvements in roof tiles with "mock joints" and a method and apparatus for producing such tiles.

10 By roof tiles with a "mock joint" we mean a tile provided with a groove to give the appearance that the tile is comprised of more than one tile in side-by-side relationship on a roof.

15 From ground level it is relatively easy to observe the "mock joints" in tiles of conventional thickness because the groove therein may be of sufficient depth to take full benefit of the shadow effect.

20 With tiles of less than conventional thickness, however, it is impossible to provide a "mock-joint" which is more than a shallow or token groove or slot in the upper surface of a tile. This is because care must be taken to ensure that the strength of the finished product is not impaired.

The ground level observer, therefore, will have difficulty in discerning the presence of a "mock joint" in the roof tiles with shallow or token grooves in their upper surfaces, thus, the required effect is greatly diminished.

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The present invention seeks to mitigate this disadvantage and conveniently provides a tile having a "mock-joint" as herein defined wherein the "mock-joint" is highlighted by a secondary material applied thereto during manufacture of the tile.

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Conveniently, the coloured material applied to the "mock-joint" is a pigmented slurry.

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In one preferred embodiment provided by the invention the tile is an extruded concrete roof tile and the pigmented slurry is applied to the "mock-joint" thereof during the extrusion process.

onveniently the "mock-joint" may be constituted by a half-round groove, a vee-groove or a square cut groove or the like, which grooves may also conveniently have chamfered and/or rounded corners and edges.

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The present invention also provides a method of producing a tile having a highlighted "mock-joint" said method comprising the steps of forming a tile from a primary material, e.g. mortar by the extrusion of a ribbon of mortar onto tile pallets by conventional means and:-

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a) forming a "mock-joint" in an upper surface of the tile;

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and,

b) injecting a secondary material or the like into and/or onto the surfaces of the "mock-joint" as it is formed.

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Conveniently the present invention provides a method according to the preceding paragraph wherein the secondary material may be injected into a portion of the ribbon of mortar upstream, downstream or at some intermediate point with respect to the position where the "mock-joint" is formed.

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Preferably the method of the last preceding paragraph may be varied by causing injection of the secondary material so that it appears centrally or to one side or other of the "mock-joint" in the finished product.

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The present invention also conveniently provides a tile making machine for producing tiles according to the method of the last three preceding paragraphs said machine being a conventional concrete tile extrusion machine comprising a  
10 feed hopper for tile mortar, said hopper being provided with a conventional pack shaft and a compaction roller for a primary material, viz. mortar fed thereto, means for feeding a succession of tile pallets beneath said hopper wherein an otherwise conventional slipper, provided at an  
15 outlet of the hopper, is conveniently provided with a blade member arranged to define, in use, a "mock-joint" in a ribbon of mortar moving therepast, the slipper also comprising injection means associated with said blade member for introducing a secondary material into and/or  
20 onto the surfaces of a "mock-joint" portion of a ribbon of mortar, when the machine is in use.



There now follows by way of example a detailed description of the invention which description is to be read with reference to accompanying drawings in which:-

- 5      Figure 1 is a top perspective view of a novel tile of the invention;
- Figure 2 is a side view partly sectioned for clarity of an improved tile making machine for producing the tile of Figure 1;
- 10     Figure 3 is a diagrammatic perspective view of a ribbon of mortar extruded from the machine of Figure 2; and,
- Figures 4a,b and c are fragmentary views of modified slippers for use in producing the novel tiles of the present invention.

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Difficulties have been met hitherto in creating a satisfactory illusion that one roof tile appears to be two or more such tiles. The tile 1 provided by the present invention, see Figure 1, is a great improvement on prior

20     art tiles in that, despite the relative thinness of the tile and the shallowness of the groove 2 providing the "mock-joint" therein, the "mock-joint" is given added

definition by highlighting its presence. This effect is achieved by the addition of a secondary material as the tile is made. The secondary material is coloured as indicated at 3 in Figure 1 and may be wholly confined to the surfaces of the groove 2 or it may be caused to "overspill" on both sides of the grooves 2 as shown in Figure 1.

In an alternative embodiment the coloured material may appear predominantly to one side or the other of the groove 2.

The coloured material is a pigmented slurry with the colour of the pigment obviously being chosen for effect; thus, it will be a much sharper shade than the body colour of the tile if the same colour and is to be used for the body colour and the coloured material.

However, it is likely that for a grey or red tile the slurry will contain a black pigment.

The tile 1 just described is produced on a conventional tile machine 10 as shown in Figures 2 and 3.

The machine 10 thus comprises a mortar hopper 12 for mortar 14, a pack shaft 16, a compaction roller 18 and a slipper 20 downstream of said roller 18. The slipper 20 is positioned at an outlet 21 provided in a front wall 22 of the hopper 12 in known manner.

The machine also comprises conventional means, not shown, for conveying tile pallets 24 seriatim beneath the hopper 12 and through said outlet 21.

For providing the "mock-joint" on tiles produced by the machine the slipper 20 is provided with a central blade 28, see also Figure 3; thus, it will be appreciated that as a ribbon of mortar is extruded from the mortar hopper 12 a groove 2 will be formed in the upper surface 4 thereof.

The slipper 20 provides support for injection means 30 for pigmented slurry said means 30 being upstream of a trailing end of the blade 28. The pigmented slurry is supplied to the injection means at constant rate and pressure; however, in an alternative arrangement, means are provided for varying the rate and/or the pressure at which the slurry is

fed whereby the "highlighting" of the groove is enhanced by random flow of the slurry to the groove 2. Means not shown may be provided for ensuring that the pigmented slurry is introduced, i.e. injected into the mortar at the upper surface of the mortar ribbon, so that it appears wholly in said groove or to one side or the other of the groove in the finished product as aforesaid.

The groove 2 is substantially of square cut slot formation; however, in other arrangements the blade 28 may have a cross-section according to any one of the blades shown at 28a, 28b or 28c in Figures 4a,b and c. Thus, the groove 2 may be "half-round", "square cut" with rounded edges or "vee" shaped as shown in the said Figures 4a, b and c.

Other modifications may usefully be made within the scope of the invention, as described hereinafter.

- a) The injection means 30 for introducing the pigmented slurry is shown and described as being upstream of a trailing end of the blade 28, i.e. the "mock-joint" forming means. In an alternative arrangement the

means for introducing the slurry may be located downstream or at some intermediate point with respect to the blade 28.

- 5           b) The use of pigmented slurry is only an example of one highlighting material. In fact the pigmented slurry may itself be a composition of water and pigment or water pigment and cement.
- 10           Obviously, any paint-like composition may also be used, which composition is compatible with the use to which it is put, e.g. an acrylic paint composition may prove to be especially useful.
- 15           c) The cross-section of the groove 2 may be of any convenient shape as described and the corners thereof at the top and/or bottom of the groove may be chamfered, round, or square cut. In addition the groove may be cut off-centre compared with that
- 20           shown in Figure 1 and also, the tile 1 may be extruded as a tile and a half width or as a double tile with more than one groove 2 in its upper surface 4.

In use the tiles of the present invention provide a pleasing aspect with the "mock-joints" being clearly visible to the ground level observer.

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It will thus be appreciated that the tiles provided by the present invention overcome the shortcomings of prior art products incorporating shallow grooves.

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It is considered that the introduction of the pigmented slurry to the groove coupled with the randomness of the flow of slurry to the injection means and the nature of the groove, i.e. its shape, contribute to the aesthetically pleasing effect which is achieved.

Claims

1. A tile or the like comprising a "mock-joint" as herein defined wherein the "mock-joint" is highlighted by a secondary material applied thereto during manufacture of the tile.
2. A tile according to Claim 1 wherein the secondary material applied to the "mock-joint" is a pigmented slurry.
3. A tile according to Claim 2 wherein the pigmented slurry comprises cement, pigment and water.
4. A tile according to Claim 1 wherein the secondary material is an acrylic paint or the like.
5. A tile according to any one of the preceding Claims wherein the tile is an extruded concrete roof tile and the secondary material is applied to the mock-joint thereof during the extrusion process employed for making the tile.

6. A tile according to any one of the preceding Claims in which the "mock-joint" may be comprised by a "half-round groove", a vee-groove or a square cut groove.

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7. A tile according to Claim 6 wherein the grooves have chamfered and/or radiused corners and edges.

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8. A method of producing a tile having a highlighted "mock-joint" said method comprising the steps of forming a tile from a primary material, e.g. mortar by the extrusion of a ribbon of mortar onto tile pallets by conventional means and:-

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- a) forming a "mock-joint" in an upper surface of the tile;

and,

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- b) injecting a secondary material or the like into and/or onto the surfaces of the "mock-joint" as it is formed.



A method according to Claim 8 wherein the secondary material may be injected into a portion of the ribbon of mortar upstream, downstream or at some intermediate position with respect to the position where the "mock-joint" is formed.

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10. A method according to Claim 6 wherein the position of injection of the secondary material is varied so that it appears centrally or to one side or the other of the "mock-joint" in the finished product.

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11. A tile making machine for producing tiles according to the method of Claim 8,9 and 10, said machine being a conventional concrete tile extrusion machine comprising a feed hopper for tile mortar, said hopper being provided with a conventional pack shaft and a compaction roller for a primary material, viz. mortar fed thereto, means for feeding a succession of tile pallets beneath said hopper wherein an otherwise conventional slipper, provided at an outlet of the hopper, comprises a blade member arranged to define, in use, a "mock-joint" in a ribbon of mortar moving therepast, the machine also comprising injection means

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associated with said blade member for introducing a secondary material into the surfaces of a "mock-joint" portion of a ribbon of mortar, when the machine is in use.

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12. A tile substantially as hereinbefore described with reference to the accompanying drawings.